

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 2000303163  
PUBLICATION DATE : 31-10-00

APPLICATION DATE : 15-04-99  
APPLICATION NUMBER : 11108155

APPLICANT : NIPPON PAINT CO LTD;

INVENTOR : YOMOGIHARA MASANOBU;

INT.CL. : C23C 14/08 C23C 14/32 C23C 14/34  
G02B 5/00 G02B 5/20 G02F 1/1335

TITLE : LOW REFLECTION BLACK FILM, LOW  
REFLECTION BLACK LAMINATED  
FILM, PRODUCTION OF LOW  
REFLECTION BLACK FILM AND  
COLOR FILTER



ABSTRACT : PROBLEM TO BE SOLVED: To realize a low reflection black (laminated) film having optical characteristics and heat resistance better than those of the low reflection black films as heretofore and used for a black matrix material, to realize a black matrix using the low reflection black (laminated) film and to provide a color filter provided with the black matrix.

SOLUTION: This low reflection black film is the one in which at least one layer of low reflection black film formed on a substrate is composed of a metallic oxide thin film having a homogeneous compsn. essentially consisting of a titanium compd. composed of titanium oxide. The low reflection black film formed on the substrate is composed of a metallic oxide thin film in which the main component in the face in the depth direction is a titanium compd. expressed by  $\text{TiO}(2-X)$  (in the formula,  $0 \leq X \leq 2$ ), and has a gradient compsn. in which the value of X continuously increases or reduces with respect to the film thickness direction heading from the lowermost face on the substrate side toward the surface of the black film.

COPYRIGHT: (C)2000,JPO